

Name: \_\_\_\_\_

## Equivalent Fractions

Katie, Jalissa, and Mariana each had a rectangular cake at their birthday parties. Katie's cake was divided into 12 pieces. Jalissa's cake was divided into 8 pieces. Mariana's cake was divided into 4 pieces. The children at Katie's party ate  $\frac{9}{12}$  of the cake. The children at Jalissa's party ate  $\frac{5}{8}$  of the cake. The children at Mariana's party ate  $\frac{3}{4}$  of the cake. Which two cakes had the same amount eaten? Use words, pictures, and numbers to explain your answer.

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## Fractions

(Answer ID # 0341241)

Complete.

1. One-fourth of the students in James' class in Perth are immigrants. If there are thirty-six people in the class, how many students are not immigrants?	2. Angelina is making sopapillas to share with her class when she tells them about the history of Mexican Independence Day. The sopapillas are so good, especially with honey, and Angelina is sure everyone will want to eat more than one! It takes three cups of flour, two teaspoons of sugar, one tablespoon of baking powder, one-fifth of a cup of shortening, one and a third teaspoons salt, and one and three-fourths cups of water to make fourteen servings. If Angelina wants to make 70 servings, how much of each ingredient will she need?
3. "They" are found on Mars, Venus and Earth. As far as is known there are eighty-four of "them." If twenty-eight are on Mars, and thirty are on Earth, what fraction of "them" are on Venus?	4. Catharina's father harvests eighty-two ears of maize every hour. How many ears does he harvest in two-fifths of an hour?
5. Mr. Hawkins had received one hundred fifty acres as his headright when he came to the Plymouth Colony. He gave one-fifth of his land to his brother. How many acres did he have left?	6. Chef Justin was very particular about the ingredients he used in his pizzas. He even ordered the mozzarella directly from Italy. His favorite mozzarella was Mozzarella di Bufala, made in Campania. It costs \$9.94 per pound. He used half of a pound of this very special mozzarella on each pizza. If Chef Justin made forty-two pizzas with the Mozzarella di Bufala, how much would that amount of cheese cost?

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Name \_\_\_\_\_

## Generate Equivalent Fractions

9-10

## Lesson 48

COMMON CORE STANDARD CC.4.NF.1  
Lesson Objective: Use multiplication to generate equivalent fractions.Write an equivalent fraction for  $\frac{4}{5}$ .

Step 1 Choose a whole number, like 2.

Step 2 Create a fraction using 2 as the numerator and denominator:  $\frac{2}{2}$ .  
This fraction is equal to 1. You can multiply a number by 1 without changing the value of the number.Step 3 Multiply  $\frac{4}{5}$  by  $\frac{2}{2}$ :  $\frac{4 \times 2}{5 \times 2} = \frac{8}{10}$ .So,  $\frac{4}{5}$  and  $\frac{8}{10}$  are equivalent.Write another equivalent fraction for  $\frac{4}{5}$ .

Step 1 Choose a different whole number, like 20.

Step 2 Create a fraction using 20 as the numerator and denominator:  $\frac{20}{20}$ .Step 3 Multiply  $\frac{4}{5}$  by  $\frac{20}{20}$ :  $\frac{4 \times 20}{5 \times 20} = \frac{80}{100}$ .So,  $\frac{4}{5}$  and  $\frac{80}{100}$  are equivalent.

Write two equivalent fractions.

1.  $\frac{2}{6}$ 2.  $\frac{4}{10}$ 3.  $\frac{3}{6}$ 4.  $\frac{3}{5}$ 

Name \_\_\_\_\_

Lesson 48  
CC.4.NF.1

1. Kyle drank
- $\frac{2}{3}$
- cup of apple juice.
- 
- Which fraction is equivalent to
- $\frac{2}{3}$
- ?

(A)  $\frac{2}{9}$   
 (B)  $\frac{2}{6}$   
 (C)  $\frac{6}{9}$   
 (D)  $\frac{9}{6}$

2. Nicolette needs
- $\frac{1}{3}$
- yard of fabric.
- 
- Which fraction is equivalent to
- $\frac{1}{3}$
- ?

(A)  $\frac{1}{9}$   
 (B)  $\frac{5}{15}$   
 (C)  $\frac{2}{3}$   
 (D)  $\frac{15}{5}$

3. There are 5 marbles in each bag.
- 
- One of the marbles in each bag is striped. Which two fractions are equivalent to
- $\frac{1}{5}$
- ?

(A)  $\frac{2}{3}$   
 (B)  $\frac{3}{12}$   
 (C)  $\frac{2}{16}$   
 (D)  $\frac{2}{4}$

4. Amy's banana bread recipe calls for
- $\frac{3}{4}$
- cup of brown sugar. She only has a
- $\frac{1}{8}$
- cup measure. Which equivalent fraction shows the amount of brown sugar she needs for the recipe?

(A)  $\frac{2}{8}$  cup  
 (B)  $\frac{3}{8}$  cup  
 (C)  $\frac{4}{8}$  cup  
 (D)  $\frac{6}{8}$  cup

Problem Solving **REAL WORLD**

5. Jan has a 12-ounce milkshake. Four ounces in the milkshake are vanilla, and the rest is chocolate. What are two equivalent fractions that represent the fraction of the milkshake that is vanilla?

6. Kareem lives
- $\frac{4}{10}$
- of a mile from the mall.
- 
- Write two equivalent fractions that show what fraction of a mile Kareem lives from the mall.

## Simplest Form

A fraction is in **simplest form** when 1 is the only factor that the numerator and denominator have in common.

Tell whether the fraction  $\frac{7}{8}$  is in simplest form.

Look for common factors in the numerator and the denominator.

<b>Step 1</b> The numerator of $\frac{7}{8}$ is 7. List all the factors of 7.	$1 \times 7 = 7$ The factors of 7 are 1 and 7.
<b>Step 2</b> The denominator of $\frac{7}{8}$ is 8. List all the factors of 8.	$1 \times 8 = 8$ $2 \times 4 = 8$ The factors of 8 are 1, 2, 4, and 8.
<b>Step 3</b> Check if the numerator and denominator of $\frac{7}{8}$ have any common factors greater than 1.	The only common factor of 7 and 8 is 1.
So, $\frac{7}{8}$ is in simplest form.	

Tell whether the fraction is in simplest form. Write yes or no.

1.  $\frac{4}{12}$                       2.  $\frac{2}{10}$                       3.  $\frac{3}{5}$

Write the fraction in simplest form.

4.  $\frac{4}{12}$                       5.  $\frac{6}{10}$                       6.  $\frac{3}{6}$

1. Jamal made a list of fractions and asked Will to find the fraction written in simplest form. Which fraction should Will choose?

- (A)  $\frac{1}{8}$   
(B)  $\frac{3}{9}$   
(C)  $\frac{9}{18}$   
(D)  $\frac{6}{10}$

3. In the school chorus,  $\frac{2}{12}$  of the students are fourth graders. In simplest form, what fraction of the students in the school chorus are fourth graders?

- (A)  $\frac{4}{12}$   
(B)  $\frac{2}{12}$   
(C)  $\frac{2}{6}$   
(D)  $\frac{1}{6}$

2. In the Jones School Library,  $\frac{5}{10}$  of the computers have scanners. In simplest form, what fraction of the computers have scanners?

- (A)  $\frac{5}{10}$   
(B)  $\frac{1}{4}$   
(C)  $\frac{1}{2}$   
(D)  $\frac{6}{12}$

4. Ten of 12 balloons at Jean's party are filled with helium. In simplest form, what fraction of the balloons are filled with helium?

- (A)  $\frac{4}{6}$   
(B)  $\frac{5}{6}$   
(C)  $\frac{12}{12}$   
(D)  $\frac{12}{10}$

### Problem Solving

5. At Memorial Hospital,  $\frac{9}{12}$  of the 12 babies born on Tuesday were boys. In simplest form, what fraction of the babies born on Tuesday were boys?

6. Cristina uses a ruler to measure the length of her math textbook. She says that the book is  $\frac{4}{10}$  meter long. Is her measurement in simplest form? If not, what is the length of the book in simplest form?

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## Compare Fractions

**Lesson 53**  
COMMON CORE STANDARD: CC.4.NF.2  
Lesson Objective: Compare fractions by finding their least common denominator or a common denominator.

Theo filled a beaker  $\frac{3}{4}$  full with water. Angelica filled a beaker  $\frac{3}{8}$  full with water. Whose beaker has more water?

Compare  $\frac{3}{4}$  and  $\frac{3}{8}$ .

**Step 1** Divide one beaker into 4 equal parts.

Divide another beaker into 8 equal parts.

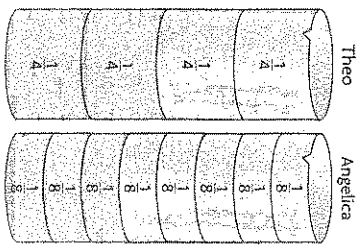
**Step 2** Shade  $\frac{3}{4}$  of the first beaker.

**Step 3** Shade  $\frac{3}{8}$  of the second beaker.

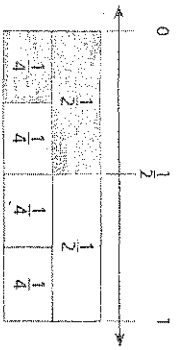
**Step 4** Compare the shaded parts of each beaker. Half of Theo's beaker is shaded. Less than half of Angelica's beaker is shaded.

$\frac{3}{4}$  is greater than  $\frac{3}{8}$ .

So, Theo's beaker has more water.

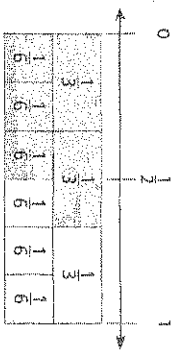


1. Compare  $\frac{1}{2}$  and  $\frac{1}{4}$ .



Which is greater? \_\_\_\_\_

2. Compare  $\frac{2}{3}$  and  $\frac{3}{6}$ .



Which is less? \_\_\_\_\_

Compare. Write  $<$ ,  $>$ , or  $=$ .

3.  $\frac{1}{2}$   $\bigcirc$   $\frac{3}{4}$

4.  $\frac{6}{12}$   $\bigcirc$   $\frac{5}{8}$

5.  $\frac{2}{3}$   $\bigcirc$   $\frac{4}{6}$

6.  $\frac{3}{8}$   $\bigcirc$   $\frac{1}{4}$

Name \_\_\_\_\_

## Lesson 53

CC.4.NF.2

1. Bill used  $\frac{3}{8}$  cup of raisins and  $\frac{2}{3}$  cup of banana chips to make a snack. Which statement correctly compares the fractions?

- (A)  $\frac{3}{8} > \frac{2}{3}$  (C)  $\frac{2}{3} > \frac{3}{8}$   
(B)  $\frac{2}{3} < \frac{3}{8}$  (D)  $\frac{2}{3} = \frac{3}{8}$

3. Brad uses  $\frac{1}{4}$  cup of milk and  $\frac{1}{8}$  cup of yogurt in a recipe. Which statement correctly compares the fractions?

- (A)  $\frac{3}{4} < \frac{1}{8}$  (C)  $\frac{3}{4} = \frac{1}{8}$   
(B)  $\frac{3}{4} > \frac{1}{8}$  (D)  $\frac{1}{8} > \frac{3}{4}$

2. Elaine bought  $\frac{7}{8}$  pound of potato salad and  $\frac{4}{7}$  pound of macaroni salad for a picnic. Which statement correctly compares the fractions?

- (A)  $\frac{7}{8} > \frac{2}{4}$  (C)  $\frac{2}{4} = \frac{7}{8}$   
(B)  $\frac{7}{8} < \frac{2}{4}$  (D)  $\frac{2}{4} > \frac{7}{8}$

4. In a parade,  $\frac{2}{6}$  of the floats have musicians on them. In the same parade,  $\frac{4}{12}$  of the floats have animals on them. Which statement correctly compares the fractions?

- (A)  $\frac{2}{6} > \frac{4}{12}$  (C)  $\frac{4}{12} > \frac{2}{6}$   
(B)  $\frac{2}{6} < \frac{4}{12}$  (D)  $\frac{4}{12} = \frac{2}{6}$

### Problem Solving

5. A recipe uses  $\frac{2}{3}$  cup of flour and  $\frac{3}{8}$  cup of blueberries. Is there more flour or more blueberries in the recipe?

6. Peggy completed  $\frac{5}{6}$  of the math homework and Al completed  $\frac{4}{5}$  of the math homework. Did Peggy or Al complete more of the math homework?

Name \_\_\_\_\_

**Compare and Order Fractions****Lesson 54**

COMMON CORE STANDARD CC.4.NF.2

Lesson Objective: Compare and order fractions.

Write  $\frac{3}{8}$ ,  $\frac{1}{4}$ , and  $\frac{1}{2}$  in order from least to greatest.**Step 1** Identify a common denominator.Multiples of 8:  $\textcircled{8}$ , 16, 24Multiples of 4: 4,  $\textcircled{8}$ , 16,Multiples of 2: 2, 4, 6,  $\textcircled{8}$ 

Use 8 as a common denominator.

**Step 2** Use the common denominator to write equivalent fractions.

$$\frac{3}{8} = \frac{1 \times 3}{4 \times 2} = \frac{3}{8}$$

$$\frac{1}{4} = \frac{1 \times 2}{4 \times 2} = \frac{2}{8}$$

$$\frac{1}{2} = \frac{1 \times 4}{2 \times 4} = \frac{4}{8}$$

**Step 3** Compare the numerators.

$$2 < 3 < 4$$

**Step 4** Order the fractions from least to greatest, using  $<$  or  $>$  symbols.

$$\frac{2}{8} < \frac{3}{8} < \frac{4}{8}$$

So,  $\frac{1}{4} < \frac{3}{8} < \frac{1}{2}$ 

Write the fraction with the greatest value.

1.  $\frac{2}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{6}$

2.  $\frac{3}{10}$ ,  $\frac{1}{2}$ ,  $\frac{2}{5}$

3.  $\frac{1}{8}$ ,  $\frac{5}{12}$ ,  $\frac{9}{10}$

Write the fractions in order from least to greatest.

4.  $\frac{9}{10}$ ,  $\frac{1}{2}$ ,  $\frac{5}{6}$

5.  $\frac{3}{4}$ ,  $\frac{7}{8}$ ,  $\frac{1}{2}$

6.  $\frac{2}{3}$ ,  $\frac{3}{4}$ ,  $\frac{5}{6}$

Name \_\_\_\_\_

**Lesson 54**

CC.4.NF.2

1. Jeff is making muffins. He combines  $\frac{1}{6}$  cup milk,  $\frac{1}{8}$  cup raisins, and  $\frac{1}{3}$  cup butter. Which list shows the amounts of ingredients in order from least to greatest?

- (A)  $\frac{1}{8}$ ,  $\frac{1}{6}$ ,  $\frac{1}{3}$   
 (B)  $\frac{1}{8}$ ,  $\frac{1}{3}$ ,  $\frac{1}{6}$   
 (C)  $\frac{1}{3}$ ,  $\frac{1}{6}$ ,  $\frac{1}{8}$   
 (D)  $\frac{1}{3}$ ,  $\frac{1}{8}$ ,  $\frac{1}{6}$

3. Mr. Adams is driving Betsy, Ed, and Beth home from the mall. Betsy lives  $\frac{1}{4}$  mile from the mall. Ed lives  $\frac{2}{3}$  mile from the mall, and Beth lives  $\frac{1}{2}$  mile from the mall. Which list shows the distances in order from closest to farthest?

- (A)  $\frac{1}{4}$ ,  $\frac{2}{3}$ ,  $\frac{1}{2}$   
 (B)  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{2}{3}$   
 (C)  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{2}{3}$   
 (D)  $\frac{2}{3}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$

2. Shing is wrapping gifts. He has  $\frac{5}{8}$  yard of blue ribbon,  $\frac{2}{4}$  yard of gold ribbon, and  $\frac{3}{12}$  yard of pink ribbon. Which list shows the lengths of the ribbons in order from least to greatest?

- (A)  $\frac{2}{4}$ ,  $\frac{5}{8}$ ,  $\frac{5}{12}$   
 (B)  $\frac{5}{12}$ ,  $\frac{2}{4}$ ,  $\frac{5}{8}$   
 (C)  $\frac{2}{5}$ ,  $\frac{5}{12}$ ,  $\frac{4}{8}$   
 (D)  $\frac{5}{8}$ ,  $\frac{2}{5}$ ,  $\frac{5}{12}$

4. Katie is making necklaces. She has  $\frac{1}{3}$  yard of blue ribbon,  $\frac{3}{4}$  yard of pink ribbon, and  $\frac{7}{8}$  yard of green ribbon. Which list shows the lengths of the ribbons in order from least to greatest?

- (A)  $\frac{7}{8}$ ,  $\frac{1}{3}$ ,  $\frac{3}{4}$   
 (B)  $\frac{7}{8}$ ,  $\frac{3}{4}$ ,  $\frac{1}{3}$   
 (C)  $\frac{1}{3}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$   
 (D)  $\frac{3}{4}$ ,  $\frac{7}{8}$ ,  $\frac{1}{3}$

5. Three friends shared a loaf of garlic bread. Ray ate  $\frac{2}{6}$  of the loaf, Jay ate  $\frac{5}{12}$  of the loaf, and Kay ate  $\frac{1}{4}$  of the loaf. List the names in order of least to greatest amount of the loaf eaten. Explain how you know.

Name \_\_\_\_\_

97-10

## Lesson 57

COMMON CORE STANDARD CC.4.NF.3b

Lesson Objective: Write fractions greater than 1 as mixed numbers and write mixed numbers as fractions greater than 1

### Rename Fractions and Mixed Numbers

A mixed number is made up of a whole number and a fraction. You can use multiplication and addition to rename a mixed number as a fraction greater than 1.

Rename  $2\frac{5}{6}$  as a fraction.

First, multiply the denominator, or the number of parts in the whole, by the whole number.

$$6 \times 2 = 12$$

Then, add the numerator to your product.

$$12 + 5 = 17$$

$$\text{So, } 2\frac{5}{6} = \frac{17}{6}$$

$$2 \times \frac{5}{6} = \frac{10}{6}$$

total number of parts  
number of parts in the whole

You can use division to write a fraction greater than 1 as a mixed number.

Rename  $\frac{16}{3}$  as a mixed number.

To rename  $\frac{16}{3}$  as a mixed number, divide the numerator by the denominator.

$$\begin{array}{r} 5 \\ 3 \overline{)16} \\ \underline{-15} \\ 1 \end{array}$$

Use the quotient and remainder to write a mixed number.

$$\text{So, } \frac{16}{3} = 5\frac{1}{3}$$

Write the mixed number as a fraction.

$$1. 3\frac{2}{3} = \underline{\hspace{2cm}}$$

$$2. 4\frac{3}{5} = \underline{\hspace{2cm}}$$

$$3. 4\frac{3}{8} = \underline{\hspace{2cm}}$$

$$4. 2\frac{1}{6} = \underline{\hspace{2cm}}$$

Write the fraction as a mixed number.

$$5. \frac{32}{5} = \underline{\hspace{2cm}}$$

$$6. \frac{19}{3} = \underline{\hspace{2cm}}$$

$$7. \frac{15}{4} = \underline{\hspace{2cm}}$$

$$8. \frac{51}{10} = \underline{\hspace{2cm}}$$

Name \_\_\_\_\_

## Lesson 57

CC.4.NF.3b

1. Wanda rode her bike  $\frac{21}{10}$  miles. Which mixed number shows how far Wanda rode her bike?

- (A)  $1\frac{1}{10}$  miles  
(B)  $1\frac{2}{10}$  miles  
(C)  $2\frac{1}{10}$  miles  
(D)  $2\frac{10}{10}$  miles

2. Ilene is making smoothies.

The recipe calls for  $1\frac{1}{4}$  cups of strawberries. What is this amount written as a fraction greater than one?

- (A)  $\frac{4}{5}$  cup  
(B)  $\frac{5}{4}$  cups  
(C)  $\frac{6}{4}$  cups  
(D)  $\frac{11}{4}$  cups

3. Lee's vacation is in  $3\frac{7}{8}$  weeks. Which shows the number of weeks until Lee's vacation written as a fraction greater than one?

- (A)  $\frac{34}{7}$   
(B)  $\frac{25}{7}$   
(C)  $\frac{24}{7}$   
(D)  $\frac{14}{7}$

4. Derek and his friend shared two small pizzas. Derek ate  $\frac{7}{6}$  of the pizzas. Which mixed number shows how much pizza Derek ate?

- (A)  $1\frac{1}{6}$   
(B)  $1\frac{3}{6}$   
(C)  $1\frac{4}{6}$   
(D)  $2\frac{1}{6}$

### Problem Solving



5. A recipe calls for  $2\frac{3}{4}$  cups of raisins, but Julie only has a  $\frac{1}{4}$ -cup measuring cup. How many  $\frac{1}{4}$  cups does Julie need to measure out  $2\frac{3}{4}$  cups of raisins?

6. If Julie needs  $3\frac{1}{4}$  cups of oatmeal, how many  $\frac{1}{4}$  cups of oatmeal will she use?

## Lesson 51

COMMON CORE STANDARD CC.AE.1

Lesson Objective: Use the strategy make a table to solve problems using equivalent fractions.

## Problem Solving • Find Equivalent Fractions

Kyle's mom bought bunches of balloons for a family party. Each bunch has 4 balloons, and  $\frac{1}{4}$  of the balloons are blue. If Kyle's mom bought 5 bunches of balloons, how many balloons did she buy? How many of the balloons are blue?

Read the Problem						
What do I need to find?	What information do I need to use?	How will I use the information?				
I need to find how many balloons Kyle's mom bought and how many of the balloons are blue.	Each bunch has 1 out of 4 balloons that are blue, and there are 5 bunches.	I will make a table to find the total number balloons Kyle's mom bought and the fraction of balloons that are blue.				
Solve the Problem						
I can make a table.						
	Number of Bunches	1	2	3	4	5
	Total Number of Blue Balloons	1	2	3	4	5
	Total Number of Balloons	4	8	12	16	20

Kyle's mom bought 20 balloons. 5 of the balloons are blue.

Kyle's mom bought 20 balloons. 5 of the balloons are blue.

Make a table to solve.

- Jackie is making a beaded bracelet. The bracelet will have no more than 12 beads.  $\frac{1}{3}$  of the beads on the bracelet will be green. What other fractions could represent the part of the beads on the bracelet that will be green?
- Ben works in his dad's bakery packing bagels. Each package can have no more than 16 bagels.  $\frac{3}{4}$  of the bagels in each package are plain. What other fractions could represent the part of the bagels in each package that will be plain?

## Lesson 51

CC.AE.1

- Malia is making a bracelet with beads. She wants  $\frac{1}{4}$  of the beads to be blue. If the greatest number of beads that will fit on the bracelet is 20, what fraction does not represent the part of the beads on the bracelet that are blue?
- Suzanne arranges flowers at her restaurant. She puts 8 flowers in each vase. Three flowers in each vase are yellow. If Suzanne uses 32 flowers, how many are yellow?

1.  $\frac{4}{8}$   
 2.  $\frac{5}{20}$   
 3.  $\frac{4}{16}$   
 4.  $\frac{3}{12}$

- Liam works in a toy store that sells bags of marbles. He puts 10 marbles in each bag, and  $\frac{2}{10}$  of the marbles are striped. If Liam makes 3 bags of marbles, how many striped marbles does he use?
- Every  $\frac{1}{2}$  mile along a hiking path there is a water fountain, every  $\frac{1}{4}$  mile there is a bench, and every  $\frac{1}{8}$  mile there is a marker. Which of the following will be at  $\frac{3}{4}$  mile along the path?

1. 2  
 2. 6  
 3. 20  
 4. 30
1. water fountain, bench, and marker  
 2. water fountain and marker  
 3. water fountain and bench  
 4. bench and marker

- Sandra is making fruit baskets. She wants  $\frac{1}{6}$  of the fruit in each basket to be bananas. If the greatest number of pieces of fruit that will fit in each basket is 24, what fractions represent the possible ways Sandra can have bananas in the fruit basket? Explain how you found your answer.



# Lesson 58

COMMON CORE STANDARD CC.4.NF.3c  
Lesson Objective: Add and subtract mixed numbers.

## Add and Subtract Mixed Numbers

Find the sum:  $3\frac{1}{4} + 2\frac{1}{4}$

Add the whole number and fraction parts.

- Add the whole numbers:  $3 + 2 = 5$
- Add the fractions:  $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$

Write the sum as a mixed number, so the fractional part is less than 1.  $3\frac{1}{4} + 2\frac{1}{4} = 5\frac{2}{4}$

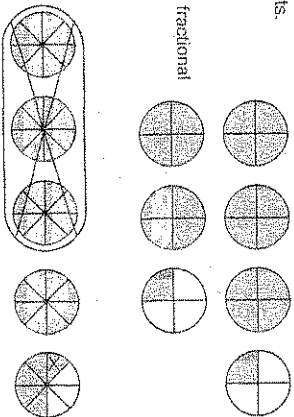
part is less than 1.  $3\frac{1}{4} + 2\frac{1}{4} = 5\frac{2}{4}$

Find the difference:  $4\frac{5}{8} - 3\frac{1}{8}$

Subtract the fraction and the whole number parts.

- Subtract the fractions:  $\frac{5}{8} - \frac{1}{8} = \frac{4}{8}$
- Subtract the whole numbers:  $4 - 3 = 1$

$$4\frac{5}{8} - 3\frac{1}{8} = 1\frac{4}{8}$$



Find the sum or difference.

$$1. \quad 3\frac{4}{5} + 4\frac{3}{5}$$

$$2. \quad 7\frac{2}{3} - 3\frac{1}{3}$$

$$3. \quad 4\frac{7}{12} + 6\frac{5}{12}$$

$$4. \quad 12\frac{3}{4} - 6\frac{1}{4}$$

$$5. \quad 2\frac{3}{8} + 8\frac{1}{8}$$

$$6. \quad 11\frac{9}{10} - 3\frac{7}{10}$$

$$7. \quad 7\frac{2}{5} + 4\frac{3}{5}$$

$$8. \quad 8\frac{3}{6} - 3\frac{1}{6}$$

# Lesson 58

CC.4.NF.3c

1. Sue used  $2\frac{3}{8}$  cups of walnuts and  $1\frac{7}{8}$  cups of almonds to make a nut mix. How many more cups of walnuts than almonds did Sue use?

- (A)  $\frac{1}{8}$  cup
- (B)  $1\frac{1}{8}$  cups
- (C)  $3\frac{1}{8}$  cups
- (D)  $3\frac{5}{8}$  cups

2. Paige hiked  $5\frac{5}{6}$  miles. Xavier hiked  $2\frac{1}{6}$  miles. How many fewer miles did Xavier hike than Paige?

- (A)  $2\frac{1}{6}$  miles
- (B)  $3\frac{2}{6}$  miles
- (C)  $3\frac{4}{6}$  miles
- (D) 8 miles

3. Kate has two lengths of ribbon. The pink ribbon is  $4\frac{6}{12}$  feet long, and the purple ribbon is  $2\frac{4}{12}$  feet long. How much ribbon does Kate have in all?

- (A)  $\frac{10}{12}$  foot
- (B)  $2\frac{2}{12}$  feet
- (C)  $6\frac{10}{12}$  feet
- (D)  $6\frac{11}{12}$  feet

4. Max used  $3\frac{7}{8}$  pounds of yellow potatoes and  $2\frac{5}{8}$  pounds of sweet potatoes to make a potato salad. How many more pounds of yellow potatoes than sweet potatoes did Max use?

- (A)  $6\frac{1}{8}$  pounds
- (B)  $5\frac{2}{8}$  pounds
- (C)  $1\frac{2}{4}$  pounds
- (D)  $1\frac{2}{8}$  pounds

## Problem Solving

5. James wants to send two gifts by mail. The first package weighs  $2\frac{3}{4}$  pounds. The other package weighs  $1\frac{1}{4}$  pounds. What is the total weight of the packages?

6. Tierra bought  $4\frac{3}{8}$  yards blue ribbon and  $2\frac{1}{8}$  yards yellow ribbon for a craft project. How much more blue ribbon than yellow ribbon did Tierra buy?

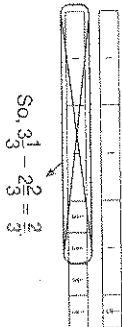
## Subtraction with Renaming

Fraction strips can help you subtract mixed numbers or subtract a mixed number from a whole number.

Find the difference.  $3\frac{1}{3} - 2\frac{2}{3}$

**Step 1** Model the number you are subtracting from,  $3\frac{1}{3}$ .

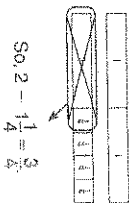
**Step 2** Because you cannot subtract  $\frac{2}{3}$  from  $\frac{1}{3}$  without renaming, change one of the 1 strips to three  $\frac{1}{3}$  strips. Then subtract by crossing out two wholes and two  $\frac{1}{3}$  strips.



Find the difference.  $2 - 1\frac{1}{4}$

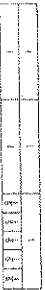
**Step 1** Model the number you are subtracting from, 2.

**Step 2** Because you cannot subtract  $\frac{1}{4}$  from 1 without renaming, change one of the 1 strips to four  $\frac{1}{4}$  strips. Then subtract by crossing out one whole and one  $\frac{1}{4}$  strip.



Find the difference.

$$1. 3 - 2\frac{2}{5} = \underline{\hspace{2cm}}$$



$$2. 2\frac{1}{4} - 1\frac{3}{4} = \underline{\hspace{2cm}}$$



$$3. 3\frac{2}{5} - 2\frac{4}{5} = \underline{\hspace{2cm}}$$

$$4. 3\frac{1}{12} - 2\frac{11}{12} = \underline{\hspace{2cm}}$$

$$5. 4\frac{5}{8} - 2\frac{7}{8} = \underline{\hspace{2cm}}$$

1. Thomas got  $9\frac{1}{3}$  feet of wood to fix his fence. When he finished, he had  $3\frac{2}{3}$  feet of wood left. How much wood did Thomas use to fix his fence?

- (A)  $5\frac{1}{3}$  feet  
(B)  $5\frac{2}{3}$  feet  
(C)  $6\frac{1}{3}$  feet  
(D)  $6\frac{2}{3}$  feet

2. Sulee has  $8\frac{1}{4}$  yards of blue fabric and  $4\frac{2}{4}$  yards of green fabric. How much more blue fabric does Sulee have than green fabric?

- (A)  $3\frac{1}{4}$  yards  
(B)  $3\frac{3}{4}$  yards  
(C)  $4\frac{1}{4}$  yards  
(D)  $4\frac{3}{4}$  yards

3. Alicia had  $3\frac{1}{6}$  yards of fabric to make a tablecloth. When she finished the tablecloth, she had  $1\frac{4}{6}$  yards of fabric left. How many yards of fabric did Alicia use to make the tablecloth?

- (A)  $1\frac{1}{6}$  yards  
(B)  $2\frac{3}{6}$  yards  
(C)  $2\frac{5}{6}$  yards  
(D)  $4\frac{5}{6}$  yards

4. Gina has  $5\frac{2}{6}$  feet of silver ribbon and  $2\frac{4}{6}$  feet of gold ribbon. How much more silver ribbon does Gina have than gold ribbon?

- (A) 8  
(B)  $3\frac{4}{6}$   
(C)  $3\frac{2}{6}$   
(D)  $2\frac{4}{6}$

## Problem Solving

5. Alicia buys a 5-pound bag of rocks for a fish tank. She uses  $1\frac{1}{8}$  pounds for a small fish bowl. How much is left?

6. Xavier made 25 pounds of roasted almonds for a fair. He has  $3\frac{1}{2}$  pounds left at the end of the fair. How many pounds of roasted almonds did he sell at the fair?

Name \_\_\_\_\_

# Add and Subtract Fractions

## Lesson 63

COMMON CORE STANDARD CC.4.NF.3d

Lesson Objective: Solve word problems involving addition and subtraction with fractions.

You can find and record the sums and the differences of fractions.

Add:  $\frac{2}{5} + \frac{4}{5}$

Step 1 Model it.



Step 2 Think: How many sixths are there in all?

There are 6 sixths.

Step 3 Record it.

Write the sum as an addition equation.

$\frac{2}{5} + \frac{4}{5} = \frac{6}{5}$

Subtract:  $\frac{6}{10} - \frac{2}{10}$

Step 1 Model it.



Step 2 Think: There are 6 tenths. I take away 2 tenths. How many tenths are left?

There are 4 tenths left.

Step 3 Record it.

Write the difference as a subtraction equation.

$\frac{6}{10} - \frac{2}{10} = \frac{4}{10}$

Find the sum or difference.

1. 7 eighth-size parts - 4 eighth-size parts = \_\_\_\_\_

$\frac{7}{8} - \frac{4}{8} =$  \_\_\_\_\_

2.  $\frac{11}{12} - \frac{4}{12} =$  \_\_\_\_\_ 3.  $\frac{2}{10} + \frac{2}{10} =$  \_\_\_\_\_ 4.  $\frac{6}{8} - \frac{4}{8} =$  \_\_\_\_\_

5.  $\frac{2}{4} + \frac{2}{4} =$  \_\_\_\_\_ 6.  $\frac{4}{5} - \frac{3}{5} =$  \_\_\_\_\_ 7.  $\frac{1}{3} + \frac{2}{3} =$  \_\_\_\_\_

Name \_\_\_\_\_

## Lesson 63

CC.4.NF.3d

1. Mindi planted beans in  $\frac{4}{10}$  of her garden and peas in  $\frac{2}{10}$  of her garden. What fraction of the garden has beans or peas?

- (A)  $\frac{1}{10}$
- (B)  $\frac{9}{20}$
- (C)  $\frac{8}{10}$
- (D)  $\frac{9}{10}$

3. Miguel is going to sell pet treats at the school fair. He made  $\frac{3}{8}$  of the treats for dogs and  $\frac{2}{8}$  of the treats for cats. The rest of the treats are for other types of pets. What fraction of the pet treats is for cats or dogs?

- (A)  $\frac{1}{8}$
- (B)  $\frac{2}{8}$
- (C)  $\frac{5}{8}$
- (D)  $\frac{7}{8}$

2. Harrison ate  $\frac{3}{12}$  of a pizza. Miles ate  $\frac{5}{12}$  of the same pizza. How much more of the pizza did Miles eat than Harrison?

- (A)  $\frac{1}{12}$
- (B)  $\frac{2}{12}$
- (C)  $\frac{4}{12}$
- (D)  $\frac{8}{12}$

4. Teresa planted marigolds in  $\frac{1}{6}$  of her garden and petunias in  $\frac{4}{6}$  of her garden. What fraction of the garden has marigolds or petunias?

- (A)  $\frac{6}{6}$
- (B)  $\frac{5}{6}$
- (C)  $\frac{5}{12}$
- (D)  $\frac{1}{6}$

5. Don writes  $\frac{6}{10} - \frac{3}{10} = \frac{9}{10}$ . Is his answer correct? Explain, and tell how you find the correct answer if Don is wrong.

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# Multiples of Fractions

You have learned to write multiples of unit fractions. You can also write multiples of other fractions.

Write the next 4 multiples of  $\frac{2}{5}$ .

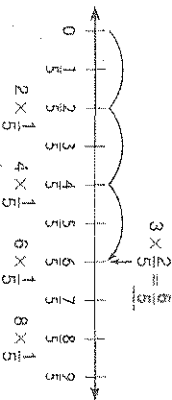
Make a table.

$1 \times \frac{2}{5}$	$2 \times \frac{2}{5}$	$3 \times \frac{2}{5}$	$4 \times \frac{2}{5}$	$5 \times \frac{2}{5}$
$\frac{2}{5}$	$\frac{2}{5} + \frac{2}{5}$	$\frac{2}{5} + \frac{2}{5} + \frac{2}{5}$	$\frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{2}{5}$	$\frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{2}{5}$
$\frac{2}{5}$	$\frac{4}{5}$	$\frac{6}{5}$	$\frac{8}{5}$	$\frac{10}{5}$

So, the next 4 multiples of  $\frac{2}{5}$  are  $\frac{4}{5}$ ,  $\frac{6}{5}$ ,  $\frac{8}{5}$ , and  $\frac{10}{5}$ .

Write  $3 \times \frac{2}{5}$  as the product of a whole number and a unit fraction.

Use a number line. Make three jumps of  $\frac{2}{5}$ .

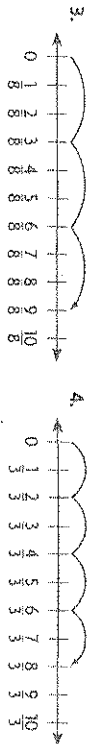


So,  $3 \times \frac{2}{5} = \frac{6}{5}$  or  $6 \times \frac{1}{5}$ .

List the next four multiples of the fraction.

- $\frac{3}{4}$  \_\_\_\_\_
- $\frac{5}{6}$  \_\_\_\_\_

Write as the product of a whole number and a unit fraction.



$3 \times \frac{3}{8} = \frac{9}{8}$

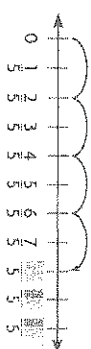
$4 \times \frac{2}{5} = \frac{8}{5}$

- Phil drew a number line showing multiples of  $\frac{3}{6}$ .
- Oleg drew a number line to help him multiply  $4 \times \frac{2}{5}$ .



Which number on the number line shows the product  $2 \times \frac{3}{6}$ ?

- ☐ A  $\frac{2}{6}$   
☐ B  $\frac{3}{6}$   
☐ C  $\frac{6}{6}$   
☐ D  $\frac{9}{6}$



Which shows  $4 \times \frac{2}{5}$  written as the product of a whole number and a unit fraction?

- ☐ A  $4 \times \frac{1}{5}$   
☐ B  $4 \times \frac{2}{5}$   
☐ C  $8 \times \frac{1}{5}$   
☐ D  $8 \times \frac{1}{4}$

- Gwen listed the multiples of  $\frac{3}{10}$ . Which is not a multiple of  $\frac{3}{10}$ ?

- ☐ A  $\frac{8}{10}$   
☐ B  $\frac{9}{10}$   
☐ C  $\frac{15}{10}$   
☐ D 30

- Alma is making 3 batches of tortillas. She needs to add  $\frac{1}{4}$  cup water to each batch. Her measuring cup holds  $\frac{1}{4}$  cup. How many times must Alma measure  $\frac{1}{4}$  cup of water to have enough for all the tortillas?

- ☐ A 4  
☐ B 6  
☐ C 8  
☐ D 9

- Explain how to write the first three multiples of  $\frac{4}{9}$ .

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Lesson 67

COMMON CORE STANDARD CC.4.NF.4b  
Lesson Objective: Use a model to multiply a fraction by a whole number.

## Multiply a Fraction by a Whole Number Using Models

You can use a model to multiply a fraction by a whole number.

Find the product of  $4 \times \frac{3}{5}$ .

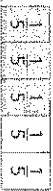
Use fraction strips. Show 4 groups of  $\frac{3}{5}$  each.



1 group of  $\frac{3}{5} = \frac{3}{5}$



2 groups of  $\frac{3}{5} = \frac{6}{5}$



3 groups of  $\frac{3}{5} = \frac{9}{5}$

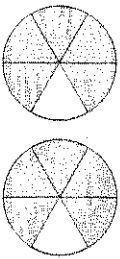


4 groups of  $\frac{3}{5} = \frac{12}{5}$

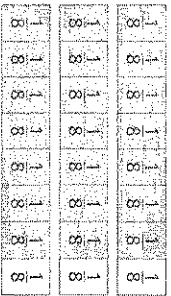
So,  $4 \times \frac{3}{5} = \frac{12}{5}$

Multiply.

1.



2.



$2 \times \frac{3}{8} =$  \_\_\_\_\_

$3 \times \frac{7}{8} =$  \_\_\_\_\_

$3. 6 \times \frac{2}{5} =$  \_\_\_\_\_

$4. 2 \times \frac{9}{10} =$  \_\_\_\_\_

$5. 5 \times \frac{3}{4} =$  \_\_\_\_\_

$6. 4 \times \frac{5}{8} =$  \_\_\_\_\_

$7. 7 \times \frac{2}{5} =$  \_\_\_\_\_

$8. 8 \times \frac{4}{6} =$  \_\_\_\_\_

# Lesson 67

CC.4.NF.4b

1. Alani uses  $\frac{3}{4}$  cup pineapple juice to make one Hawaiian sweet bread. How much pineapple juice will she use to make 5 sweet breads?

- (A)  $\frac{15}{4}$  cups  
(B)  $\frac{11}{4}$  cups  
(C)  $\frac{10}{4}$  cups  
(D)  $\frac{8}{4}$  cups

3. Mr. Tuyen uses  $\frac{5}{8}$  of a tank of gas each week to drive to and from work. How many tanks of gas does Mr. Tuyen use in 5 weeks?

- (A)  $\frac{40}{8}$   
(B)  $\frac{25}{8}$   
(C)  $\frac{10}{8}$   
(D)  $\frac{5}{40}$

2. Jason writes repeated addition to show  $4 \times \frac{2}{3}$ . Which shows an expression Jason could use?

- (A)  $4 + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$   
(B)  $\frac{2}{12} + \frac{2}{12} + \frac{2}{12} + \frac{2}{12}$   
(C)  $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3}$   
(D)  $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$

4. Mark bought 3 packages of grapes. Each package weighed  $\frac{7}{8}$  pound. How many pounds of grapes did Mark buy?

- (A)  $\frac{10}{8}$  pounds  
(B)  $\frac{21}{8}$  pounds  
(C) 10 pounds  
(D) 21 pounds

## Problem Solving

5. Matthew walks  $\frac{1}{2}$  mile to the bus stop each morning. How far will he walk in 5 days?

6. Emily uses  $\frac{3}{4}$  cup of milk to make one batch of muffins. How many cups of milk will Emily use if she makes 3 batches of muffins?

## Multiply a Fraction or Mixed Number by a Whole Number

**COMMON CORE STANDARD CC.4.NF.AC**  
**Lesson Objective:** Multiply a fraction by a whole number to solve a problem.

To multiply a fraction by a whole number, multiply the numerators. Then multiply the denominators.

A recipe for one loaf of bread calls for  $2\frac{1}{4}$  cups of flour. How many cups of flour will you need for 2 loaves of bread?

**Step 1** Write and solve an equation.

$$\begin{array}{c} \sim \\ \times \\ \sim \\ \hline \text{II} \\ \sim \text{III} \\ \times \\ \hline \text{IV} \end{array}$$

Write 2 as  $\frac{2}{1}$ . Write  $2\frac{1}{4}$  as a fraction.

$$\begin{array}{r} 11 \\ 2 \\ \times 4 \\ \hline 8 \\ 44 \\ \hline 44 \end{array}$$

Multiply the numerators.  
Then multiply the denominators.

$$\begin{array}{c} \parallel \\ \rightarrow \text{ } \end{array}$$

Simplify.

**Step 2** Write the product as a mixed number.

[illegible]

Combine the wholes. Then combine the remaining parts.

$$\frac{2}{3} \times \frac{4}{4} = \frac{2}{3} \quad \text{or} \quad \frac{4}{4} \times \frac{2}{3} = \frac{2}{3}$$

Add. Write the sum as a mixed number.

So, you will need  $2\frac{4}{5}$  cups of flour.

**Multiply.** Write the product as a mixed number.

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 ۱۱  
 ۱۲  
 ۱۳

$$\begin{array}{c} \mathbb{N} \\ \Delta \\ \times \\ \omega \cdot \omega \\ || \end{array}$$

۱۱  
۱۲  
۱۳  
۱۴  
۱۵

$$\frac{4}{2} \times \frac{1}{5} \omega$$

5  
4  
X  
—  
6312  
2

$$6.7 \times 10^{-1}$$

Lesson 68  
CC.4.NF.4c

CC.4.NF.4c

1. Malak solved a problem that had an answer of  $\frac{33}{5}$ . How can Malak write  $\frac{33}{5}$  as a mixed number?

- 


  
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2. Bo recorded a basketball game that lasted  $2\frac{1}{2}$  hours. Bo watched the game 3 times last week. How many hours did Bo spend watching the game?

- (A)  $6\frac{1}{2}$  hours  
(B)  $7\frac{1}{2}$  hours  
(C) 9 hours  
(D) 10 hours

3. Carrie spends  $1\frac{1}{4}$  hours practicing the piano 3 times a week. How much time does Carrie spend practicing the piano in one week?

- Ⓐ  $4\frac{1}{4}$  hours  
Ⓑ 4 hours  
Ⓒ  $3\frac{3}{4}$  hours  
Ⓓ  $3\frac{1}{4}$  hours

4. Yasuo always puts  $1\frac{1}{2}$  teaspoons of honey in his tea. Yesterday Yasuo drank 5 cups of tea. How much honey did he use in all?

- Ⓐ  $6\frac{1}{2}$  teaspoons  
 Ⓑ  $7\frac{1}{2}$  teaspoons  
 Ⓒ 8 teaspoons  
 Ⓓ  $8\frac{1}{2}$  teaspoons

# Problem Solving

5. Brielle exercises for  $\frac{3}{4}$  hour each day for 6 days in a row. Altogether, how many hours does she exercise during the 6 days?

6. A recipe for quinoa calls for  $2\frac{2}{3}$  cups of milk. Conner wants to make 4 batches of quinoa. How much milk does he need?

## Problem Solving • Comparison Problems with Fractions

The Great Salt Lake in Utah is about  $\frac{2}{5}$  mile above sea level. Lake Titicaca in South America is about 3 times as high above sea level as the Great Salt Lake. About how high above sea level is Lake Titicaca?

Read the Problem	Solve the Problem			
What do I need to find? I need to find <u>about how high above sea level Lake Titicaca is.</u>	Draw a comparison model. Compare the heights above sea level of the Great Salt Lake and Lake Titicaca, in miles. Great Salt Lake <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td><math>\frac{2}{5}</math></td></tr></table>	$\frac{2}{5}$		
$\frac{2}{5}$				
What information do I need to use? The Great Salt Lake is about $\frac{2}{5}$ mile above sea level. Lake Titicaca is about <u>3</u> times as high above sea level.	Lake Titicaca <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td><math>\frac{2}{5}</math></td><td><math>\frac{2}{5}</math></td><td><math>\frac{2}{5}</math></td></tr></table>	$\frac{2}{5}$	$\frac{2}{5}$	$\frac{2}{5}$
$\frac{2}{5}$	$\frac{2}{5}$	$\frac{2}{5}$		
How will I use the information? I can <u>draw a diagram</u> to compare the heights.	Write an equation and solve. $t$ is the height above sea level of Lake Titicaca, in miles. $t = \frac{3}{1} \times \frac{2}{5}$ Write an equation. $t = \frac{12}{5}$ Multiply. $t = \frac{22}{5}$ Write the fraction as a mixed number.			

50. Lake Titicaca is about  $\frac{22}{5}$  miles above sea level.

So, Lake Titicaca is about  $\frac{22}{5}$  miles above sea level.

1. Amelia is training for a triathlon. She swims  $\frac{3}{4}$  mile. Then she runs about 6 times farther than she swims. About how far does Amelia run?
2. Last week, Meg bought  $1\frac{3}{4}$  pounds of fruit at the market. This week, she buys 4 times as many pounds of fruit as last week. In pounds, how much fruit does Meg buy this week?

1. Rudi is comparing shark lengths. He read that a sandbar shark is  $4\frac{1}{2}$  feet long. A thresher shark is 3 times as long as that. How long is a thresher shark?

Sandbar Shark	$4\frac{1}{2}$		
Thresher Shark			

- (A)  $13\frac{1}{2}$  feet  
(B) 12 feet  
(C)  $7\frac{1}{2}$  feet  
(D) 7 feet

3. A flight takes  $1\frac{1}{4}$  hours to get from Dyson to Hardy. The flight takes 3 times as long to get from Dyson to Williams. How long is the flight from Dyson to Williams?

- (A)  $3\frac{3}{4}$  hours  
(B) 4 hours  
(C)  $4\frac{1}{4}$  hours  
(D)  $4\frac{3}{4}$  hours

2. Cyndi made macaroni salad. She used  $1\frac{1}{8}$  cups of mayonnaise. She used 9 times as much macaroni. How many cups of macaroni did Cyndi use?

- (A)  $9\frac{3}{8}$  cups  
(B)  $10\frac{1}{8}$  cups  
(C) 18 cups  
(D) 81 cups

4. Paz weighed  $5\frac{5}{8}$  pounds when she was born. By age 2, she weighed 4 times as much. If  $p$  stands for pounds, which equation could you use to find Paz's weight at age 2?

- (A)  $p = 4 + 5\frac{5}{8}$   
(B)  $p = (4 \times 5) + \frac{5}{8}$   
(C)  $p = 4 \times 5\frac{5}{8}$   
(D)  $p = (4 \times \frac{5}{8}) + 5$

5. A recipe for rice and beans uses  $1\frac{1}{2}$  cups of beans and 4 times as much rice. Jess has plenty of beans but only 5 cups of rice. Does she have enough rice to make the recipe? Explain.